

REMARKS

BY

WILLIAM W. HUBBELL,

ON

THE SUBJECT

OF HIS

**PATENT FIRE ARMS,**

(WITH COPY OF PATENT,)

AND HIS

**EXPLOSIVE DESTRUCTIVE CONCUSSION SHELL.**

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PHILADELPHIA:

1844.

Entered by WM. W. HUBBELL, according to the Act of Congress, in December, 1844, in the Clerk's Office of the District Court of the Eastern District of Pennsylvania.

**WILLIAM W. HUBBELL'S**  
**PATENT FIRE ARMS.**

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(COPY OF PATENT.)

No. 3649.

**THE UNITED STATES OF AMERICA.**



*To all to whom these Letters Patent shall come:*

Whereas, WILLIAM W. HUBBELL, Philadelphia, Pennsylvania, has alleged that he has invented a new and useful

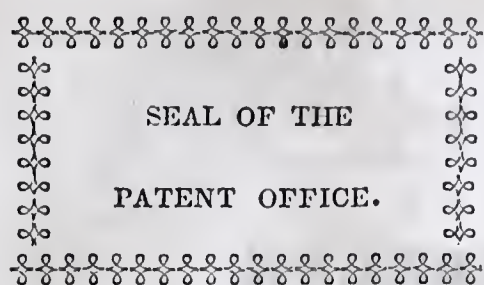
**IMPROVEMENT IN FIRE-ARMS,**

which he states has not been known or used before his application; has made oath that he is a citizen of the United States, that he does verily believe that he is the *original and first inventor or discoverer* of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States, the sum of Thirty Dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a Patent may be granted for that purpose.

These are therefore to grant according to law, to the said William W. Hubbell, his heirs, administrators or assigns, for the term of Fourteen years, from the first day of July, one thousand eight hundred and forty-



four, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said William W. Hubbell, in the Schedule hereunto annexed, and is made a part of these presents.



SEAL OF THE

PATENT OFFICE.

COUNTERSIGNED AND SEALED  
WITH THE SEAL OF THE  
PATENT OFFICE.

(Signed) E. G. SMITH, *Acting Commissioner of Patents.*

In testimony whereof, I have caused these Letters to be made Patent, and the Seal of the Patent Office has been hereunto affixed. Given under my hand, at the city of Washington, this, First day of July, in the year of our Lord one thousand eight hundred and forty-four; and of the Independence of the United States of America, the sixty-eighth.

(Signed) J. C. CALHOUN,  
*Secretary of State.*

*The Schedule referred to in these Letters Patent and making part of the same.*

To all whom it may concern: Be it known that I, William W. Hubbell, of the city of Philadelphia, and State of Pennsylvania, have invented a new and improved construction of Fire-Arms, and I do hereby declare that the following is a full and exact description of the same.

The nature of my invention consists in detaching so much of the Breech end of the Barrel as will contain the charge from the main part of the Barrel, by having it to flap over to one side of the barrel on a rod as its centre, which runs parallel with the Barrel, and thus expose itself to receive the charge, after receiving which, it is flapped back to discharge its load through the main part of the Barrel; and is for all kinds of Fire-Arms.

To enable others skilled in Fire-Arms, to make and use my invention, I will proceed to describe its construction and operation, referring to the accompanying drawings which make up this specification.

*Fig. 1.* is a perspective view of the upper part of the Breech. To the sides of the back part of the Main barrel (A) I have two ears (BB) through which two Rods (CC) pass, and are secured to a breech plate (D) which receives the recoil end of the breech (E) which contains the load, and which opens on the left hand rod as its centre—the right hand rod acting as its correspondent, both serving the purpose of bracing the main barrel to the breech plate, having the breech between them; there is a percussion tube (G) on the back end of the breech to fire the charge from.

*Fig. 2.* is a perspective side view, similar letters referring to the same parts as in *Fig. 1.*

To regulate the calibre of the breech (E) properly with that of the main barrel (A), I have to the lower part of the main barrel a tongue (H) on which the breech rests, and which enters a square groove in the breech

plate (D), and it will now be observed that the lower part (I) of the breech plate extends under the whole breech, and receives the main barrel in a prong, securely, and that the guard (K) screws to it; the stock and breech end are secured together by the usual breech tongue and the guard. The back action lock I deem best to use. Variations of the same.—A Flint and Steel may be used to fire the charge, the pan being where the percussion tube is. The rods (CC) may screw into the ears and breech plate with right and left screws on each rod. The Breech (E) may have one or two chambers, a corresponding number always being in the main barrel, and when there are two a corresponding tube and lock must be on the opposite side. For other little peculiarities not explicitly describable here, reference is given to the Gun. The breech (E) may open either on the right or left hand rod, but I have deemed the left hand preferable, a pin (L) secures it down.

OPERATION.—The breech (E) is opened on its centre, charged, closed, primed, and fired, and so on successively.

CLAIM.—What I claim as my invention, and desire to secure by letters patent, is the Breech opening and closing on a rod as a centre, which runs parallel with the main barrel in the operation of loading and firing Fire Arms.

*Witnesses.*

(Signed) WM. W. HUBBELL.

(Signed) Joel Cook,  
C. F. Hagedorn. }

WUSKETS' CHAMBER HUBBELL



REMARKS  
BY  
WILLIAM W. HUBBELL,  
ON  
THE SUBJECT OF HIS  
PATENT FIRE ARMS.

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IN Fire Arms, as with all other successful inventions, there are certain standard principles on which the existence and operation of the machine or thing is founded, and the instant that a departure is made from these foundations the whole structure falls, and becomes a mass of chaos and imperfection.

ON LOADING AGAINST A SOLID PERMANENT END TO THE CALIBRE OF THE BARREL.—This principle of loading has stood the test of ages with unwavering supremacy, and whatever may have been the results of the almost innumerable efforts to discover others, that are to be found mentioned in the works on such subjects, I still cannot perceive that any other principle of loading ever was adopted, or ever aided in the prosecution of a military enterprise to a successful issue. It was this principle that operated at the battle of Waterloo, and throughout the American Revolution, and wherever I look to the circumstance of much execution from the discharge of Musketry, Rifles, or Artillery, I cannot but at once perceive that the principle of loading, which exists in my Fire Arms, viz: that of pressing the charge of powder against a permanent end of the calibre of the gun, was adopted and used as a standard feature. By theoretical reasoning, this principle appears to me to be perfect, because the entire action for forcing the bullet operates direct against this permanent end, which therefore to be undisturbed, and to prevent a superfluous escape of the explosive gas of the gunpowder, and also to allow the charge to rest firmly without any possibility of vacuum or space to exist in its dimensions, should be both solid and tight—both being attained in my Fire arms, the Breech of which is a perfectly solid piece of metal, which receives the charge against the firm end of its calibre, by pressing it down against it from a false muzzle created by opening the Breech. The charge is therefore loaded on the principle of guns loading at the muzzle, the difference being only one of distance; I having the charge to travel a short distance by the peculiar construction of my gun, whilst to attain the same position in guns that load at the extreme muzzle, the charge travels a longer distance.



As regards the state of efficiency of the powder when loaded, my Fire Arms possess decided advantages over the arms that load at the muzzle. The reasons as given by me being as follows: By firing any gun two or three times, moisture originated from the exploded saltpetre adheres to the interior of the barrel, and when the powder is poured in at the muzzle it comes in contact with this moist surface, and therefore it, by its nature, being always susceptible of freely imbibing moisture, in a moist state passes to the Breech of the gun, which is slightly increased by the bullet driving before it, in its passage to the powder, additional moisture and a quantity of the refuse of the burnt powder, which impairs the explosive power of the powder, and frequently in a short time renders it totally unfit for use. But these defects never come into action in loading my Fire Arms, as the powder goes in at the Breech immediately to its proper position, and never passing down the moist barrel, rests in the Breech in a perfectly dry state, and when fired, explodes simultaneously, and exerts its whole power to force the bullet; hence it is that my Fire Arms force a bullet with superior rapidity, even with a less quantity of powder than other Fire Arms require.

ON FIRING THE POWDER.—Many ways of firing the charges of guns have been employed, but the most usual and most successful way has been to force the fire to the powder at the back part, though of the side thereof, which appeared to my mind to be liable to exert an unequal action on the surface of the bullet, but as the Arms have Breeches which screw into the barrel, the deficiency cannot be thoroughly remedied in any other way than by altering them on to my principle, which can be readily done. The Breech of my Fire Arms being perfectly solid, I have employed the advantage that it presented, and admitted the fire at the centre of a semi-spherical hollow that forms the back end of the Breech, consequently the fire spreads from the centre of the extreme back end of the breech, and therefore fires the charge uniformly, causing thereby an uniform action on the bullet. Another important feature of firing the charge in the Breech of my Fire Arms is, that the motion of the fire in going to the charge is at right angles with the centre line of the calibre of the gun, which allows an equality of action of the fire on the charge. But if, as in the patent arms having screw breeches, the fire entered on a line parallel with that of the calibre, a greater force would be thrown by this fire on the powder directly opposite to it than elsewhere, and therefore cause an irregular explosion of the charge, I consequently claim a superiority for my Fire Arms in the manner of firing the charge, proved by theoretical exposition, and confirmed by actual trials with fine shot and bullets, in competition with arms of other kinds.

ON THE PASSAGE OF THE BULLET ALONG THE CALIBRE OF THE GUN.—A variety of ways have been tried on passing the bullet in the barrel; my opinion however is, that arms loading at the Breech present decided advantages for a perfect action of the bullet, as it can fit the barrel very tightly and yet go freely into the Breech, and that the bullet should be of precisely the same diameter as the calibre of the gun; having the bullet



larger causes it to become elongated, and liable to be thrown out of a direct course by the action of the passing wind being consequently irregular on its surface, whilst a bullet of the same size as the calibre is packed by its cartridge cover so very tight that it bears against its entire surface, still keeps the barrel free from refuse powder, has no windage, and passes out of the barrel in a perfectly globular shape and consequently flies with the utmost precision. Smooth bored barrels allow the bullet to fly with more force than cut barrels, but with less precision than bullets fly having a rotary motion given to them by the cuts or winding creases in the barrel. The smooth bore is preferable for Muskets, but the cut barrel is best for Rifles.

ON THE MECHANICAL CONSTRUCTION OF WM. W. HUBBELL'S PATENT FIRE ARMS.—I am well aware that there are many ways of loading guns at the Breech, but I cannot perceive perfection existing in any of the principles, but that conceived and matured by myself. The reasons are :

1st. The recoil of the Breech is received on a perfectly solid flat breech plate, and is therefore invariable.

2nd. The tendency of the power of the recoil, and the tendency of motion in opening and closing the Breech are entirely independent, neither exerting any influence on the other in its operation, and therefore not disturbing, wearing, or interfering with it in any way.

3rd. The Barrel can always be properly regulated in its position respectively with the Breech, by screwing up or loosening the bolts which brace it to the Breech Plate attached to the stock of the gun, and therefore can never be thrown out of order by the use of the gun.

4th. The breech falls on a tongue solidly attached to the barrel, which consequently cannot vary, the Breech, therefore, must be always steady, and the gun cannot be fired unless the Breech is in its proper place, which makes it both safe to use and certain in its execution.

These four together with the peculiarities preceedingly given, and belonging to my Fire Arms, form a degree of perfection which I think it would be destroying to alter, and folly for me, at any future time, to attempt to improve.

## OF MY FIRE ARMS FOR MILITARY SERVICE.

The causes which, in my opinion, make my Fire Arms superior to any other for Military service, further than those which are already hereinbefore given, are : That the use of a ramrod for loading is entirely dispensed with, and the cartridge is pressed into its proper place in the Breech, by any one of the fingers of the right hand that best suits the size of the Breech chamber : That it can be easily loaded on horseback whilst the animal is at full speed, by scarcely any movement of the arms, and none of the body : That soldiers can rapidly load and fire it when lying behind an Embankment but *two feet high*, which height affords sufficient shield, for them to pour forth their effective volleys from these arms, whilst they are almost unmolested, owing to the protection that their little Breastwork



and their own force afford them: That though fired the entire day long, it can always be kept in complete order for instant use, by scraping out the Breech, which operation requires but seven seconds, and is not requisite until thirty charges have first been fired by the gun.

That the use of the *old and well tried kind of Cartridge, still remaining in service, and which contains a bullet and three buck shot*, being maintained in it, thereby avoids all the inconveniences of bulk, motion, and explosions of Flasks in the throng and *fire* of battle: which advantages, together with the unparalleled rapidity, force, and precision of its discharges, and its being the same weight of, and yet stronger than the ordinary Fire Arms, I give as reasons of its superiority.

### FOR NAVAL SERVICE.

Its adaptedness for hostile excursions on to the land, and the small space necessary for using it on board ship, whilst boarding or repelling Boarders, with the rapidity, force, and precision of its discharges, and its other qualities hereinbefore stated, make it, in my belief, most efficient and useful for Naval purposes.

### ACTUAL TEST OF THE POWER OF MY FIRE ARMS.

On the 7th day of October, 1844, in the yard of the Philadelphia City Gas Works, in the presence of Military, Naval, and Scientific gentlemen, on a trial of rapidity of use, I loaded and fired my Musket *twenty-two times in four minutes*, besides which, the force and precision of its bullets were evidently much superior to the firing of any other kind of gun.

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### ORDER OF EXERCISE.

- |                     |  |
|---------------------|--|
| 1st. OPEN.          | { Fulfilled by raising the hammer half way, drawing the pin (L.) and opening the Breech. |
| 2d. CHARGE.         | { Fulfilled by biting the cartridge and pressing it in the Breech with the finger.       |
| 3d. CLOSE.          | { Fulfilled by closing the Breech, pressing in the pin (L.) and putting on the cap.      |
| 4th. MAKE<br>READY. | { Fulfilled by raising the hammer to its full height, and taking aim.                    |
| 5th. FIRE.          | { Fulfilled by pulling the trigger, which causes the discharge of the gun.               |

WM. W. HUBBELL,  
INVENTOR AND PATENTEE, *Philadelphia, Pa.*

# COPIES OF LETTERS, &C.

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## LETTER OF THE ADJUTANT GENERAL OF THE MILITIA OF THE STATE OF PENNSYLVANIA.

LT. COLONEL TALCOTT,  
*Ordnance Department,* }  
Washington city. }

ADJUTANT GENERAL'S OFFICE, }  
Philadelphia, Oct. 25, 1844. }

SIR:—I was present at the trial of William W. Hubbell's Patent Musket, and made several shots with it myself. This gun appears to combine several important qualities, that of rapid loading and discharging, and to throw a ball with great force. This really powerful weapon is well worthy the attention of the General Government; and I trust the agents of the Ordnance Department will give it their most careful and serious consideration,

I am, very respectfully, yours, &c.,  
ADAM DILLER, *Adjutant General, P. M.*

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PHILADELPHIA, October 25th, 1844.

The undersigned having examined, and witnessed the firing of a Musket invented and patented by William W. Hubbell, Esq., of the city of Philadelphia, do cordially concur and state, that they believe that Mr. Hubbell's said invention is very *simple, strong, and durable*, that a *much less charge of gunpowder suffices* for it to shoot a Musket ball with *as much force* as a *larger charge* does from the *present U. S. Muskets*, and that with the *same charge* it will shoot with *more force*: further than this, the undersigned believe that it is *perfectly safe*, and state that they have seen Mr. Hubbell's said Musket *loaded and fired with ease five times per minute*, and that they believe that an adoption of Mr. Hubbell's Patent Musket for the Infantry of the United States, will be introducing into the Army, a *more formidable* and practical weapon for them to carry, than any other kind of Musket.

J. G. CLARKSON,  
J. R. DILLER,  
*First Lieut. Jackson Artillery.*  
EDW. S. SAYRES,  
WILLIAM C. KEEHMLE.



*Extract from a Report of Lieutenant William A. Wurts on a trial made by Mr. William W. Hubbell, of his Explosive Concussion Shell.*

NAVY YARD, PHILAD'A., APRIL 27, 1843.

SIR:—In compliance with your instructions I was present at the experiment made with Mr. William W. Hubbell's Shell, between the hours of 11 and 2 o'clock this day, about half a mile below this Yard. The following is a statement of the result :

Three six Pounder Cannon Shells, each weighing  $4\frac{1}{2}$  lbs. were fired from a six Pounder Cannonade, obtained from this Yard, at a target 8 feet by 7 feet and 7 inches, and 12 inches thick,  $2\frac{3}{4}$  inches of the thickness being oak, and  $9\frac{1}{4}$  inches hemlock, distant about 90 yards, and standing upright on three floating hemlock logs. The two first shells passed through the target splintering with effect of solid shot, and immediately or within six feet exploded, driving the fragments of the shell in every direction; the explosion was evidently the effect of the concussion and friction in passing through the target. Eleven places are counted in the logs cut by the pieces of the exploded shells, which logs occupying but a small part of the courses for the pieces of the shells to take effect upon, give reason to believe that they bursted into a great many pieces, and from the appearance of the logs, with great explosive power.

The last Shell missed the target, and bounded along over the water, I should judge, nearly a mile, when, having nearly spent its force, and not having received concussion or friction on the target to cause explosion, it exploded on a reserve, which Mr. Hubbell informs me, existed in all the shells, for such an event.

From the position in which the Shells which struck the target exploded, it is highly probable that the explosion of the shell, after passing through a ship's side, will take place immediately over the deck, and by its explosive power, do great damage in every direction.

I am, sir, very respectfully, your ob't servant,  
WM. A. WURTS, Lt.

COMMANDER F. ENGLE,  
Navy Yard, Philadelphia.

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*Extract from a Report on the trial of the Shell, made on the 10th day of August, 1843, at Sandy Hook.*

The 1st, 2d, 4th and 5th Shells in ricochet trials bounded first on the sand, and then beyond the beach on the sea, and did not explode, (successful.)

The 3d shell was fired at the target 1050 yards distant, and on striking instantly exploded inside the target, which was 20 inches thick, forcing members and splinters forward, some splinters as far as 110 feet, and one member of about 125 lbs. weight is blown off and to 60 feet distant, and also a board target laying on the ground, from 20 to 35 feet distant, is shattered and cut very much by a piece of the exploded shell having struck it, (successful.)



*Extract from a Report of the Franklin Institute on the Gun.*

HALL OF THE FRANKLIN INSTITUTE, }  
Philadelphia, Sept. 11th, 1845. }

The Committee on Science and the Arts, constituted by the Franklin Institute of the State of Pennsylvania, for the promotion of the Mechanic Arts, to whom was referred for examination, an improvement in Fire Arms, invented by Mr. W. W. Hubbell, of Philadelphia, Penn'a.,

REPORT,

That they have examined the same, and find it to consist in the language of the claim in the Patent, of a "Breech opening and closing on a rod as a centre," &c., &c.

The Committee are of opinion that the construction admits of rapid charging and firing with cartridge, or otherwise, with ball and buckshot, or small shot at will: That the moveable breech may be safely constructed; that the fastenings, or ties, by which the barrel and stock are connected, are well placed, and that the whole arrangement is not more bulky than seems essential in the construction of fire arms with a moveable chamber.

(Signed,) By order of the Committee,  
W. HAMILTON, *Actuary.*

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*Letter from Generals Cadwallader, Hubbell, Diller, and others, citizens of Philadelphia*

PHILADELPHIA, November, 1845.

The undersigned take great pleasure in recommending to the favorable consideration of the Secretaries of the War and Navy Departments of the United States, and also to the Heads of the Ordnance Bureaus of both these branches of the government, the inventions of a Patent Gun, and an Explosive Concussion Shell, by Wm. W. Hubbell, Esq., of the Philadelphia Bar.

Mr. Hubbell is a young man of untiring ingenuity, industry and enterprise is of excellent moral character, and possesses a high degree of general, as well as professional intelligence. Both of his inventions have been pronounced by properly skilled persons to be of the first order, and we believe, that to encourage him in his inventions will result much to the advantage of the government.

JOHN M. SIMS,  
F. S. SHULZE,  
GEO. M. KEIM,  
THOMAS B. FLORENCE,  
ELLIS B. SCHNABEL,  
GEO. L. ASHMEAD,  
RICHARD VAUX,  
WM. D. KELLY,  
GEO. CADWALLADER,  
(Who has seen the gun but not the shell.)  
E. N. CARDOZO,

HOR. HUBBELL,  
ADAM DILLER,  
JAMES PAGE,  
GEO. F. LEHMAN,  
HENRY WELSH,  
HORN R. KNEASS,  
JNO. McKIBBIN,  
JOHN CADWALLADER,  
(Who examined the gun but not the shell.)  
WM. F. SMALL,  
J. K. KANE.

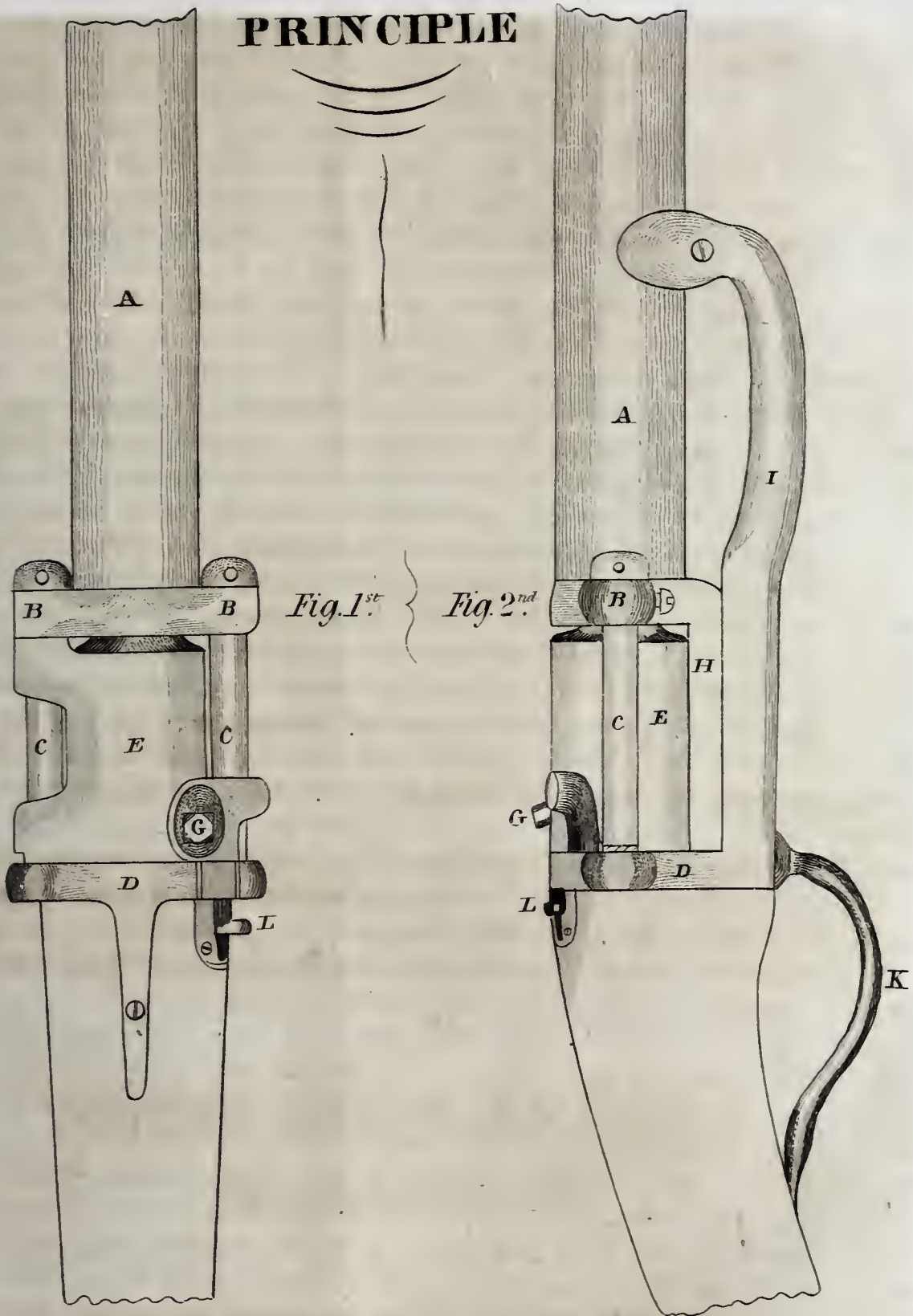


# MUSKETS, CARBINES, RIFLES

PISTOLS, SHOT GUNS

CANNON ARTILLERY

Made on this  
**PRINCIPLE**



*Wm W. Hubbell's*

**PATENT FIRE ARMS**

*Philadelphia.*

*Fires 22 Times in 4 Minutes.*

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# WILLIAM. W. HUBBELL'S

## **DESTRUCTIVE EXPLOSIVE CONCUSSION SHELL.**

### ITS SAFETY TO USE.

The adaptedness of explosive Shells to warlike purposes, in my belief, depends entirely on their safety to use. If a shell is unsafe to use, or is liable to prematurely explode by even the most severe concussion that human ingenuity can devise, although such severity may never be employed on it in actual warfare, still it is unfit for either naval or military purposes. Hence it is that in inventing my Destructive Explosive Concussion Shell, I avoided every compound that possessed detonating properties of every or any kind, deeming it an absurdity for any person to think of inventing a concussion shell by detonation principles, the nature of which is to explode by being struck. The character of my Concussion Shell being an unconfided secret, I can only assure the public that it is more safe to use than any other kind of shell that ever has been used in Naval or Military Expeditions, not excepting those of San Juan D'Acre and San Juan D'Ulloa, where the Paixhan Shell was very effective.

### TRIAL OF THE 27th OF APRIL, 1843.

To make this trial I caused to be erected a floating Target, eight feet square and one foot thick, which was moored in the river Delaware at the distance of half a mile below the Navy Yard, at Philadelphia. At this Target I fired two six pounders of my Destructive Concussion Shells, in presence of Lieut. Wurts and others. The performance of these two shells was really encouraging. The instant each struck the target, a cloud of smoke with masses of shattered timbers were seen proceeding from its farthest side ; and whilst these were visible, a heavy report fell on the ear, combining, and filling the mind with consciousness that the effect of large shells of this kind on board of a vessel of war would be irresistible.

Lieut. Wurts, in his report to the Navy Department on the subject of this trial, states: "From the position in which Mr. Hubbell's shells exploded, it is highly probable that their explosion, after passing through a ship's side, will take place immediately over the deck, and by their explosive power do great damage in every direction."

This trial convinced me that I had such control over my Concussion Shell, as to make it explode wherever I designed at the time of preparing it, and therefore I prepared five perfect 32 pounders, to have them to explode in the timber at the instant of penetration, and in the same trial test the capacity of the same kind of shell to bound from land and water.

## SECOND TRIAL.

With these shells, through a violent storm which wet them outside, I proceeded to the practice ground at Sandy Hook. On the 10th of August, 1843, I obtained the use of the 32 pounder gun on the station platform; each of these shells was fired with 8 lbs. of powder for a cartridge, being a full charge, and the powder of the best quality. One of them I fired into a large target about 1050 yards distant, whilst the rain was pouring in torrents. At the instant of its entry into the target the destruction on it was stupendous, pieces of wood filled the air, and the fragments of the shell ploughed the sand in great furrows—huge timbers were hurled an hundred feet distant, and one lying on the ground in the shape of the deck of a vessel, was shattered to atoms and strewn about by the contact of a piece of the shell. The explosion was really tremendous, and the target, on inspection, presented a chaotic deformity. Around where the shell first exerted its explosive power, it was pulverized as finely as though it had been ground in a mill—so sudden and expansive is the explosive power of my shell on striking into the side of a vessel. Another and another were successively tried on sand and water, until the whole number had been fired, each bounded, and in its rises threw up immense columns of sand and water, for two miles distance and yet never exploded in the flight. Thus I exercised in these two trials, the most complete control over concussion shells that ever human art brought forth, and confirmed my theoretical opinion by practice, it being that I possess the most safe and powerful missile to fire from cannon that ever existed on the face of the earth.

WM. W. HUBBELL,  
*Inventor.*